APPENDIX B
Statement of Work

United States of America
v.
City of Attleboro, Massachusetts, et al.

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RD/RA STATEMENT OF WORK
SHPACK LANDFILL SUPERFUND SITE
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I. INTRODUCTION AND PURPOSE/FUSRAP RESPONSE ACTION ISSUES

INTRODUCTION AND PURPOSE

This Remedial Design/Remedial Action (RD/RA) Statement of Work (SOW) defines the response activities and deliverable obligations that the Performing Defendants are obligated to perform in order to implement the Work required under the Consent Decree at the Shpack Landfill Superfund Site in Norton/Attleboro, MA (the "Site"). The activities described in this SOW are based upon the United States Environmental Protection Agency (EPA) Record of Decision (ROD) for the Site signed by the Office Director, Office of Site Remediation and Restoration, US EPA Region I, on September 30, 2004.

FUSRAP RESPONSE ACTION ISSUES

The Parties recognize that a portion of the cleanup work required by the Record of Decision is expected to be performed by the United States Army Corps of Engineers (the "Army Corps") pursuant to the Formerly Utilized Sites Remedial Action Program ("FUSRAP") (hereafter, the "FUSRAP Response Action"). In particular, the Army Corps plans to excavate all soils and sediments at the Site in excess of soil and sediment cleanup levels for radioactive contaminants (i.e., Uranium and Radium) provided in EPA's ROD. As part of this Consent Decree and SOW, the Performing Defendants shall not be required to commence on-site excavation of soils and sediments until EPA notifies the Performing Defendants that the Army Corps has completed the FUSRAP Response Action and has demonstrated compliance with the soil cleanup standards for radioactive contaminants established in the ROD.[1]

The parties acknowledge that the FUSRAP Response Action is currently expected to be performed prior to the Performing Defendants' excavation of soils and sediments at the Site. However, in the event that the FUSRAP Response Action is delayed, as determined by EPA, the Performing Defendants shall prepare a plan (including a proposed schedule) for submission to EPA detailing all portions of the soil and sediment excavation work, exclusive of the FUSRAP Response Action, that may be performed by the Performing Defendants prior to performance of the FUSRAP Response Action. Upon EPA approval

[1] Performing Defendants shall be required to commence and perform all activities required by the Consent Decree and SOW, exclusive of on-site excavation of soils and sediments, without regard to whether the Army Corps has completed the FUSRAP Response Action.

or modification of this plan, the Performing Defendants shall perform all activities described in the plan.

The Performing Defendants shall use best efforts to coordinate and cooperate with the Army Corps with respect to implementation of the Work at the Site. In addition, as part of sampling performed during the Remedial Action and after the FUSRAP Response Action has been completed, and, if necessary, sampling performed in connection with periodic reviews the Site, the Performing Defendants shall be responsible for confirming that the soil cleanup standards for radioactive contaminants established in the ROD have been met. (See, e.g., Performing Defendant's responsibilities for FINAL REMEDIAL CONSTRUCTION AND DEMONSTRATION OF COMPLIANCE, Section VI.G., below). However, the Performing Defendants shall not be required to repeat or duplicate the sampling programs to be performed by the Army Corps, including, without limitation, the confirmatory sampling program to be performed as part of the Army Corps' demonstration of compliance with soil cleanup standards for radioactive contaminants established in the ROD. Finally, in the event that after the completion of the FUSRAP Response Action the Performing Defendants detect soil or sediment contamination at the Site that exceeds the soil and sediment cleanup standards for radioactive contaminants established in the ROD, the Performing Defendants shall be responsible for excavating such soils and sediments, and transportation and disposal of such soils and sediments at an appropriately licensed disposal facility, consistent with the terms of the Consent Decree. The costs associated with the activities described in the preceding sentence shall be considered a Radiological Cost Increase as set forth in Paragraph 58 of the Consent Decree. Finally, in the event that the Performing Defendants detect such contamination at the Site, they shall notify EPA, Massachusetts Department of Environmental Protection ("MA DEP"), and the Settling Federal Agencies within thirty days after receipt of any sampling results that reveal such contamination.

During the FUSRAP Response Action, a single contractor retained by either Texas Instruments or BASF may conduct additional sampling to assess radioactive contaminant concentrations at the Site. All work shall be coordinated with the Corps of Engineers and its contractors so as to prevent any impact to the FUSRAP Response Action. Such sampling shall be performed consistent with the protocols set forth in the QAPP described in Section VIII of the Consent Decree. Results of such sampling shall be provided to the Army Corps sufficiently in advance of the Army Corps' completion of the FUSRAP Response Action to allow the Corps to consider the results of such sampling. The costs of such sampling shall be considered a Radiological Cost Increase as set forth in Paragraph 58 of the Consent Decree.

II. DEFINITIONS

The Site shall refer to the definition of "Site" as provided in the Consent Decree, except as provided in Section II.B.3, below. Other definitions provided in the Consent Decree are incorporated herein by reference. In addition, the following definitions shall apply to this SOW:

A. "Design" shall mean an identification of the technology and its performance and operational specifications, in accordance with all applicable federal, state, and local laws, including, but not limited to:

1. all computations used to size units, determine the appropriateness of technologies, and the projected effectiveness of the system;

2. materials handling and system layouts for the excavation, if required, and treatment of soils, the extraction and treatment of groundwater, and the decontamination and demolition of facilities to include size and location of units, treatment rates, location of electrical equipment and pipelines, and treatment of effluent discharge areas;

3. scale drawings of all system layouts identified above and including, but not limited to, excavation cross-sections, and well cross-sections;

4. quantitative analysis demonstrating the anticipated effectiveness of the Remedial Design to achieve the Performance Standards;

5. technical specifications which detail the following:

   a. size and type of each major component; and

   b. required performance criteria of each major component;

6. description of the extent of ambient air monitoring including equipment, monitor locations, and data handling procedures; and

7. description of access, land easements and/or other institutional controls , including related documents (e.g., survey plans, title insurance, etc.)

B. Particular areas are defined as follows:

1. The "Inner Rung" area of the Site means the area of Chartley Swamp closest to the southeast portion of the Site. Figure 5 of the Record of Decision (ROD) shows the rough boundary of the Inner Rung and Outer Rung of Chartley Swamp, which may be modified based on the results of pre-design studies.

2. The "Tongue Area" of the Site is shown in Figure 2 of the ROD.

3. "Union Road House 1" and "Union Road House 2" are the parcels labeled in Figure 3 of the ROD. The term "Site" as used in this SOW does not include the Union Road House 2 (also referred to in the Consent Decree as the "Former Shpack Residence Parcel").

4. "On-Site Seasonal Wetlands" refers to the area of the Site shown in Figure 4 of the ROD.

III. SELECTED REMEDY

The ROD describes the following Remedial Action for the Site as specified in the Record of Decision. The estimated time for construction is 9-16 months. The following are the components of the remedy to be performed by the Performing Defendants:

A. Coordination with local, state and federal agencies for excavating source area materials within a wetland and associated buffer zone;

B. Preparation and implementation of a traffic control plan to adequately manage the increased volume of truck traffic associated with transportation of any chemical and radiological impacted source material from the Site;

C. Preparation and implementation of a transportation and emergency spill contingency plan;

D. Relocation of existing power line structures, as needed, to implement the rest of the remedy in coordination with National Grid.

E. Connecting two residences to public water. The two residences are identified as Union Road House 1 and Union Road House 2. Private well closure at these two residences will be performed in accordance with MCP requirements.

F. Mobilization/demobilization of all personnel and equipment to the Site for construction activities;

G. Clearing and grubbing areas of the Site requiring excavation;

H. Establishing a survey grid to conduct sequential consolidation of grid cells to minimize generation of large quantities of groundwater with one open excavation;

I. Based on the selected risk scenario for the Site (Adjacent Resident without Groundwater Consumption), excavation and off-site disposal of soil and sediment exceeding radioactive and chemical Cleanup levels, including dioxin and PCBs, as identified in Tables L-1 and L-3 herein;

J. Excavation and off-site disposal of sediment from the Inner Rung exceeding the cleanup levels listed in Table L-2. Design studies will more fully delineate the quantities of required sediment excavation from the Inner Rung area;

K. De-watering of open areas as needed in each area of the Site;

L. Transportation of all impacted soils via truck and rail to an appropriate offsite disposal facility;

M. All excavated soil and sediments is to be disposed of in an appropriate disposal facility, including one in accordance with TSCA and the TSCA determination included as part of the ROD;

N. Placement of clean fill in open areas to backfill to grade and/or wetlands restoration/replication as appropriate;

O. Surveying vernal pools, focusing on the marbled salamander, and evaluating the habitat for any other rare species or species of special concern that may be found on the Site;

P. Protecting vernal pools and areas containing rare or species of special concern, if possible, or restoring/replicating these areas if impacted. An impact minimization and habitat restoration plan must be prepared and followed in conjunction with this work;

Q. Conducting all work in wetlands areas in accordance with the Wetland Determination included in the ROD. In addition, work in wetlands, including replication and restoration, must comply with the Wetlands Protection Act Regulations, 310 CMR 10 as well as all other applicable or relevant and appropriate requirements ("ARARs") identified for this component of the remedy.

R. Installation of a temporary chain link fence surrounding the entire Site, with access gates to secure the Site during the design and construction phases of the cleanup;

S. Preparation and implementation of a surface water, sediment and groundwater monitoring program, including installation of additional wells around the perimeter of the Site; this sampling will include but not be limited to sampling of sediment and surface water to ensure that re-contamination is not occurring.

T. Performance of 5-year reviews to monitor effectiveness of the remedy;

U. Implementation of any institutional controls necessary to restrict future use of property and groundwater, and monitoring compliance with institutional controls.

IV. PERFORMANCE STANDARDS

The Performing Defendants shall design, construct, operate, monitor, and maintain the Remedial Action in compliance with all ARARs, statutes and regulations identified in the ROD and all requirements of the Consent Decree and this SOW.

The Performing Defendants shall excavate contaminated soil and sediment at the Site that exceed the following Performance Standards :

A. Cleanup Levels and Interim Cleanup Levels

The Cleanup Levels for soil and Interim Cleanup Levels for sediment in the Inner Rung of Chartley Swamp, and sediment in the interior wetlands respectively are presented below as excerpted from Tables L-1, L-2 and L-3 of the ROD.

1. Soil

TABLE L-1 SOIL CLEANUP LEVELS, SHPACK SITE

Contaminant	Cleanup Level
Dioxin (TEQ)	1.0 ppb
Radium 226	3.1 pCi/gm
Uranium 234	220 pCi/gm
Uranium 235	52 pCi/gm
Uranium 238	110 pCi/gm
Arsenic	12 ppm
Benzo(a)anthracene	28 ppm
Benzo(a)pyrene	2.8 ppm
Benzo(b)fluoranthene	28 ppm
Dibenz(a,h)anthracene	2.8 ppm
Lead	1400 ppm
Nickel	7000 ppm
Total Uranium	1100 ppm

2. Sediment

Table L-2: Interim Cleanup Levels, Inner Rung, Chartley Swamp

Contaminant	Cleanup Level (mg/kg)
Arsenic	8.4
Cadmium	6.2
Copper	41
Chromium	2,769
Lead	32
Mercury	0.89
Silver	0.89
Beryllium	45
Zinc	1591

Table L-3: Interim Cleanup Levels, Sediments in the On-Site Seasonal Wetlands

Contaminant	Cleanup Level (mg/kg)
Benzo(a)anthracene	1.2
Benzo(a)pyrene	1.3
Benzo(b)fluoranthene	1.3
Benzo(k)fluoranthene	1.3
Chrysene	1.3
Dibenz(a,h)anthracene	1.3
Indeno(1,2,3)pyrene	1.3
Aroclor (1254)	0.27
Arsenic	188
Barium	853
Vanadium	448
DDT	0.027
Antimony	39
Beryllium	5
Cadmium	103
Chromium	427
Copper	122
Lead	551
Mercury	0.26
Nickel	7943
Silver	187
Zinc	437

V. Other Performance Standards

A. Final Cleanup Levels for Sediment:
The Interim Cleanup Levels for Sediments in the Inner Rung and On-Site Seasonal Wetlands in Tables L-2 and L-3 in the ROD may be modified by EPA, as described in Section V.B.1, should the Performing Defendants elect to perform site specific sediment toxicity testing as part of the Remedial Design. If the Interim Cleanup Levels for Sediments are modified by EPA as provided in Section V.B.1, the Performing Defendants shall incorporate the Final Cleanup Levels for the Inner Rung and the On-Site Seasonal Wetlands in the 100% Remedial Design, and shall achieve these Final Cleanup Levels during the Remedial Action. If the Performing Defendants do not elect to perform site-specific sediment toxicity testing, then the Interim Cleanup Levels for Sediments shall constitute the Final Cleanup Levels for Sediments in the Inner Rung and On-Site Season Wetlands, and the Performing Defendants shall achieve these Final Cleanup Levels during the Remedial Action.

B. Wetlands Restoration
All work in wetlands, including replication and restoration, shall be conducted in accordance with the Wetland Determination in the ROD, and must comply with the Wetlands Protection Act Regulations, 310 CMR 10, as well as all other ARARs identified for this component of the remedy. The wetland replication/restoration shall include at minimum: detailed plans illustrating all existing and proposed contour elevations; soil profiles for imported soils; a construction schedule; a planting plan including the number, size, and species of all plants; groundwater elevations; description of the replicated wetland function and values; physical features that replicate the vernal pool habitat and rare species habitat functions of the existing wetlands, including coarse woody debris, snags and pit and mound topography; and a 5-year monitoring plan. The wetland replication/restoration shall commence in the first growing season after the construction activity has been completed.

3. Institutional Controls
Institutional controls in the form of a Grant of Environmental Restriction and Easement that runs with the land and is enforceable under the laws of the Commonwealth of Massachusetts, or in some other form, shall be implemented in order to prevent uses of the Site and parcels downgradient of the Site that may pose a risk to human health or have an adverse impact on the remedy. Once implemented, the institutional controls shall be maintained, monitored, and enforced.

4. Waterline
The design and construction of the waterline to Union Road House 1 and 2, as described in the ROD, shall meet applicable federal, state and local plumbing codes, including American Water Works Association (AWWA).

The AWWA code includes sections on materials, installation, flushing, etc. In addition, the waterline shall be in compliance with all applicable federal, state, and local water supply and fire protection laws, and all rules, regulations and standards of the Norton or Attleboro Water District, as applicable.

V. REMEDIAL DESIGN

The Remedial Design activities required for the Shpack Landfill Superfund Site shall include, but are not limited to: (a) an initial remedial steps phase; and (b) a design phase. The Performing Defendants shall submit to EPA the required deliverables as stated herein for each of these Remedial Design activities. Except where expressly stated otherwise in this SOW, each deliverable shall be subject to review and approval or modification by EPA, after reasonable opportunity for review and comment by the Massachusetts Department of Environmental Protection, in accordance with Section XI of the Consent Decree, EPA Approval of Plans and other Submissions. It may be desirable for some aspects of remedial design to proceed along separate timelines (e.g., pre-design studies in Section B, waterline design).

A. Initial Remedial Steps Phase

The INITIAL REMEDIAL STEPS PHASE shall consist of developing and implementing a site monitoring plan.

1. Within 90 days after receipt of notice of the lodging of the Consent Decree, the Performing Defendants shall submit a SURFACE WATER AND GROUNDWATER MONITORING PLAN to EPA for review and approval or modification, after reasonable opportunity for review and comment by the Massachusetts Department of Environmental Protection. The SURFACE WATER AND GROUNDWATER MONITORING PLAN shall consist of semi-annual monitoring of saturated overburden, bedrock and residential wells until implementation of the approved Project Operations Plan (POP) for the Remedial Action. The SURFACE WATER AND GROUNDWATER MONITORING PLAN shall include the following:

    a. a POP which shall be prepared in support of all fieldwork to be conducted according to the SURFACE WATER AND GROUNDWATER MONITORING PLAN, and which shall include, but not be limited to, the following:

        1) a Site Management Plan (SMP);

        2) a Sampling and Analysis Plan (SAP) which includes:

            a) a Quality Assurance Project Plan (QAPP); and

b) a Field Sampling Plan (FSP);

c) an Asbestos Management Plan (AMP), if needed;

3) a site-specific Health and Safety Plan (HSP); and

4) a Community Relations Support Plan (CRSP).

The Performing Defendants shall prepare this POP in accordance with Attachment A. The existing RI/FS POP will serve as a basis for the RD/RA POP, which the Performing Defendants shall amend and revise in accordance with this SOW.

5) a detailed description of how field data will be interpreted and presented in subsequent semi-annual monitoring reports including, but not limited to, statistical methods, iso-concentration contour plots, and groundwater potentiometric surface maps; and

6) a well maintenance program which shall contain provisions for inspection, continued maintenance, repair, and prompt and proper abandonment, if necessary.

2. Within 90 days of receiving EPA's approval or modification of the SURFACE WATER AND GROUNDWATER MONITORING PLAN, the Performing Defendants shall submit to EPA and MA DEP the first semi-annual SURFACE WATER AND GROUNDWATER MONITORING REPORT. The Performing Defendants shall submit additional SURFACE WATER AND GROUNDWATER MONITORING REPORTS to EPA and MA DEP on a semi-annual basis until approval or modification by EPA, after reasonable opportunity for review and comment by the Massachusetts Department of Environmental Protection, of the monitoring program developed under the REVISED POP for the Remedial Action.

The Plan shall also include provision of sampling of the Union Road House 1 and 2 residential wells identified in the Record of Decision for abandonment and replacement by a public water supply. This sampling shall continue on a semi-annual basis until abandonment of the two residential wells.

Under the Plan, sampling of the groundwater monitoring wells at Union Road House 1 shall be performed on a semi-annual basis and shall continue to be performed on a semi-annual basis after abandonment of the residential wells at Union Road House 1 and 2. The Plan shall specify that, in the event that groundwater contamination is found in the groundwater monitoring wells (or the residential well as sampled prior to abandonment) at Union Road House 1 in excess of vapor intrusion

screening criteria, as specified in the Plan and as may modified thereafter as directed by EPA, the Performing Defendants shall propose appropriate actions to address such potential vapor intrusion, including, additional sampling, additional remedial measures (such as installation of vapor barriers), and additional institutional controls to ensure that current and future construction is designed and maintained to address vapor intrusion. Upon approval or modification by EPA, the Performing Defendants shall perform all activities set forth in the Plan.

B. Remedial Design Work Plan and Revised POP

The Remedial Design Phase shall consist of developing a REMEDIAL DESIGN WORK PLAN and REVISED POP including any investigations necessary for developing the design.

Within 90 days after receipt of notice of lodging of the Consent Decree, the Performing Defendants shall submit a REMEDIAL DESIGN WORK PLAN and REVISED POP for review and approval or modification by EPA, after reasonable opportunity for review and comment by the Massachusetts Department of Environmental Protection. The REMEDIAL DESIGN WORK PLAN and REVISED POP shall include at a minimum, the following items:

1. Detailed descriptions of all activities to be undertaken in connection with any investigations necessary for the design and implementation of the Remedial Action. The detailed descriptions shall contain a statement of purpose and objectives of the investigation, identification of the specific activities necessary to complete the investigation, and a detailed schedule for performance of the investigation. The REMEDIAL DESIGN WORK PLAN shall be consistent with Section VI of the Consent Decree (Performance of the Work by Performing Defendants), and Section L of the ROD (Selected Remedy), this SOW, and EPA's current RD/RA guidance (OSWER Directive 9355.0-4a). The REMEDIAL DESIGN WORK PLAN shall describe in detail, at a minimum, the following activities to be undertaken during the Remedial Design Phase per Section L. of the Record of Decision:

    a. Performance of pre-design and design studies to prepare for the relocation of existing power line structures, if needed, in coordination with National Grid as needed to implement the rest of the remedy.

    b. Site specific sediment toxicity testing may be conducted at the option of the Performing Defendants during pre-design efforts If conducted, such toxicity testing will be conducted in Chartley Swamp and the On-Site Seasonal Wetlands to determine whether sediment cleanup levels greater than the levels set forth in Tables

L-2 and L-3 of the ROD are protective of the benthic community. Such toxicity testing will consist of collecting bulk sediment samples for use in ten day chironomid toxicity tests to assess the impact of contaminated sediment on growth and survival. Three sampling locations will be selected for each of the exposure areas (i.e. Chartley Swamp and the Onsite Seasonal Wetlands), two in an area near where COC concentrations are the highest (near the Tongue Area in Chartley Swamp), and one to represent an area with lower COC concentrations so as to provide a gradient across which potential effects can be observed and to provide information useful for targeting potential remediation areas. If EPA determines, based on such sediment toxicity testing, that sediment cleanup levels greater than the levels set forth in Tables L-2 and L-3 of the ROD are protective of the benthic community, EPA will set new sediment cleanup levels that are greater than the levels set forth in Tables L-2 and L-3 of the ROD.

c. Sediment sampling must be performed in the Inner Rung of Chartley Swamp as necessary to more fully delineate the extent of sediment exceeding cleanup levels in Table L-2.

d. A Supplemental Baseline Ecological Risk Assessment ("SBERA"), dated May 31, 2007, was developed to address the following ROD requirement: "An assessment of ecological risk posed by soil in the Combined Field and Shrubland habitat (shown in Fig. 4 of the ROD) of the Site must be performed utilizing food chain models developed to evaluate receptor risk from soil in other areas of the Site following 'Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments (EPA 540-R-97-006)'." Based on the SBERA, EPA has determined that the soil cleanup levels in Table L-1 will address ecological risks posed by the soil in these areas.

e. Preparation of a design study to determine options for limiting the impact of dewatering on wetlands.

f. Designs, including plans and technical specifications, for the extension of a waterline from either the Town of Norton or the City of Attleboro public water supply to Union Road House 1 and 2, with adequate flow for both drinking and fire protection purposes, and with provision for connections to the plumbing of any other existing residences along the waterline. In addition, designs shall be provided for the closure of the residential wells at Union Road House 1 and 2 in accordance with state and local requirements, including the MCP requirements.

g. Collection and analysis of adequate soil/sediment from various areas of the Site (e.g., Inner Rung, On-Site Seasonal Wetlands, Tongue Area, etc.) for purposes of waste characterization, as required by potential disposal facilities. In addition, the Performing Defendants may choose to perform bench-scale testing to evaluate the effectiveness of stabilization to allow for consideration of additional disposal facilities/options. In the event that the Performing Defendants choose to perform such bench-scale testing, they shall submit a bench-scale testing work plan (and revised QAPP) as part of the REMEDIAL DESIGN WORK PLAN, including a proposed schedule that requires completion of the testing and submission of the test results and findings to EPA within 90 days of EPA approval of the bench-scale testing work plan.

h. Any other investigations required by EPA or proposed by the Performing Defendants and approved by EPA.

2. REVISED REMEDIAL DESIGN POP prepared in support of all fieldwork to be conducted according to the REMEDIAL DESIGN WORK PLAN. This REVISED POP shall be prepared in accordance with Section V.A.1.a above.

C. 30% DESIGN SUBMISSION (AND INSTITUTIONAL CONTROLS PLAN)

Within 120 days of receiving EPA's approval or modification of the REMEDIAL DESIGN WORK PLAN and REVISED POP, the Performing Defendants shall submit to EPA the 30% REMEDIAL DESIGN for review and approval or modification by EPA, after reasonable opportunity for review and comment by the Massachusetts Department of Environmental Protection. The 30% submission shall include, at a minimum, the results of all field investigations, pre-design studies in accordance with Section V.B.1., a proposal, if applicable, for the Final Cleanup Levels for the Inner Rung and in the On-Site Seasonal Wetlands, a discussion of how ARARs are being met by the design, the design criteria, the project delivery strategy, preliminary plans, drawings, sketches, and calculations, an outline of the required technical specifications, a preliminary construction schedule and costs, an INSTITUTIONAL CONTROLS PLAN, and, as appropriate, descriptions of how Performing Defendants will address each of the elements A through U in Section III.

At a minimum, the INSTITUTIONAL CONTROLS PLAN shall include:

1. Plans and schedule for implementation of institutional controls for the Site and for Union Road House 1 and 2, including but not limited to: plans presenting the process by which Grants of Environmental Restriction and Easement will be recorded in the appropriate local land records office; plans for preparation of survey plans; title-related submittals;

subordination agreements; evidence of authority; responsibility for recordation, etc.

2. Plans and schedule for compliance monitoring of implemented institutional controls by the Performing Defendants, including but not limited to: schedule for inspections; protocol for interviews to be performed as part of the inspections (e.g. types of information to be discussed during interview); inspection checklist; list of evidence to be gathered during inspections; inspection reporting; and the identity of the person who will be performing compliance monitoring and reporting.

3. Plans to perform additional remedial measures (e.g. install vapor barriers) in order to address vapor intrusion issues, if found at Union Road House 1 or 2 or as may be needed if construction of structures is planned at the Site.

4. Upon request by EPA, this plan shall present the process by which other forms of institutional controls are implemented along with or in place of Grants of Environmental Restriction and Easement.

At a minimum, the restrictions will prohibit the following activities:

1. Prohibit residential, agricultural or other uses of the Site that may present an unacceptable risk to human health.

2. Prohibit construction of any structures at the Site, unless a study is conducted to determine if vapor intrusion screening criteria are met and, as appropriate, unless construction is designed to prevent vapor intrusion.

3. Prohibit extraction of groundwater at the Site and at Union Road House 1 and 2 for consumption or any other purpose, except groundwater monitoring.

4. Prohibit excavation at the Site and at Union Road House 1 and 2 below the seasonally-high water table.

5. Otherwise impose such restrictions necessary to protect human health and the environment and maintain the integrity of the remedy.

Within ten (10) days of receipt of EPA approval or modification of the INSTITUTIONAL CONTROLS PLAN, the Performing Defendants shall implement the plan. Performing Defendants shall perform all components of the INSTITUTIONAL CONTROLS PLAN, with ongoing monitoring of the implemented institutional controls, continuing throughout the Remedial Design, Remedial Action and Operation and Maintenance phases.

D. 100% DESIGN SUBMISSION

Within 90 days of receiving EPA's approval or modification of the 30% REMEDIAL DESIGN from EPA, the Performing Defendants shall submit the 100% REMEDIAL DESIGN for review and approval. This design submittal shall address 100% of the total Remedial Design for each component of the Remedial Action including, but not limited to:

1. the final design plans and specifications in reproducible format;

2. drawings on reproducible mylars;

3. a Contingency Plan which shall address the on-site construction workers and the local affected population in the event of an accident or emergency;

4. a Constructability Review report which evaluates the suitability of the project and its components in relation to the Site;

5. a correlation of the design plans and specifications;

6. a detailed statement of how ARARs are met, and a statement of all assumptions and all drawings and specifications necessary to support the analysis of compliance with ARARS, including but not limited to 40 C.F.R. Section 264.258 (RCRA closure requirements for hazardous waste piles).

VI. REMEDIAL ACTION

The Remedial Action activities required for the Shpack Landfill Superfund Site shall include, but are not limited to: (a) remedial action work plan and REVISED POP; (b) pre-construction conference; (c) initiation of construction; (d) meetings during construction; and (e) operation and maintenance plan, environmental monitoring plan and REVISED POP. The Performing Defendants shall submit to EPA and MA DEP the required deliverables as stated herein for each of these Remedial Action activities. Each deliverable shall be subject to review and approval or modification by EPA, after reasonable opportunity for review and comment by the Massachusetts Department of Environmental Protection, in accordance with Section XI of the Consent Decree, EPA Approval of Plans and Other Submissions.

A. Remedial Action Work Plan and Revised POP

Within 180 days of receiving EPA's approval or modification of the 100% REMEDIAL DESIGN from EPA, the Performing Defendants shall submit to EPA for review and approval or modification, after reasonable opportunity for review and comment by Massachusetts Department of Environmental Protection, a REMEDIAL ACTION WORK PLAN and REVISED POP for implementing the

Remedial Action and associated activities, consistent with the approved Remedial Design for the Site. The REMEDIAL ACTION WORK PLAN and REVISED POP shall contain, at a minimum:

1. a description of all activities necessary to implement all components of the Remedial Action, in accordance with the Remedial Design, the SOW, the Consent Decree and the ROD, including but not limited to the following:

   a. award of project contracts, including all agreements with off-site treatment and/or disposal facilities;

   b. contractor mobilization/Site preparation, including construction of necessary utility hookups;

   c. construction, shake-down, and start-up of the materials handling facilities; dewatering facilities; and other facilities needed to complete the Remedial Action; and

   d. demobilization of all facilities.

2. a detailed schedule for the completion of all activities identified in Section VI.A.1, including the required deliverables, and an identification of milestone events in the performance of the Remedial Action.

3. a REVISED POP shall be prepared in support of all fieldwork to be conducted according to the REMEDIAL DESIGN WORK PLAN. This REVISED POP shall be prepared in accordance with Section V.A.1.a above.

B. Pre-construction Conference

Within 60 days of receiving EPA's approval or modification of the REMEDIAL ACTION WORK PLAN, the Performing Defendants shall hold a PRE-CONSTRUCTION CONFERENCE. The participants shall include all parties involved in the Remedial Action, including but not limited to the Performing Defendants and their representatives, EPA, and MA DEP.

C. Initiation of Construction

Within 30 days of the holding of the PRE-CONSTRUCTION CONFERENCE, the Performing Defendants shall INITIATE ALL THE REMEDIAL ACTION ACTIVITIES specified in the schedule contained therein.

D. Meetings During Construction

During the construction period, the Performing Defendants and their construction contractor(s) shall meet monthly with EPA and Massachusetts Department of

Environmental Protection regarding the progress and details of construction. If, during the construction of the Remedial Action for the Site, conditions warrant modifications of the design, construction, and/or schedules, the Performing Defendants may propose such design or construction or schedule modifications. Following approval by EPA, after reasonable opportunity for review and comment by Massachusetts Department of Environmental Protection, the Performing Defendants shall implement the design, construction or schedule modifications required.

E. Operation and Maintenance Plan, Environmental Monitoring Work Plan, and Revised POP

Within 60 days of the 75% construction complete date, the Performing Defendants shall submit to EPA for review and approval or modification, after reasonable opportunity for review and comment by the Massachusetts Department of Environmental Protection, 1) an OPERATION AND MAINTENANCE PLAN to ensure the long-term, continued effectiveness of each component of the Remedial Action, 2) an ENVIRONMENTAL MONITORING WORK PLAN to ensure conformance with the Performance Standards, and 3) a REVISED POP. These plans shall include, at a minimum, the following:

1. Operation and Maintenance Plan

   a. a description of normal maintenance;

   b. a description of contingency monitoring;

   c. a maintenance safety plan;

   d. a description of equipment;

   e. an annual operation and maintenance budget;

   f. recordkeeping and reporting requirements; and

   g. a well maintenance program including, at a minimum, the following:

      1) a provision for prompt and proper abandonment, as appropriate, of wells used during the Remedial Investigation/Feasibility Study (RI/FS) which are currently unusable or which become unusable during the Remedial Action activities;

      2) a provision for inspection, continued maintenance and repair, if necessary, of all wells used during the RI/FS and not abandoned;

3) a provision for continued maintenance or abandonment of wells used during RI/FS and additional wells used during the Remedial Design, Remedial Action and Operation and Maintenance phases after completion of the Completion Monitoring Program.

h. site closure and post-closure monitoring:

1) a cost estimate for post-closure care consistent with 40 C.F.R. Part 264;

2) establishment of a financial assurance mechanism for post-closure care consistent with 40 C.F.R. Part 264; and

3) post-closure inspection schedule and provisions for implementing such activities consistent with 40 C.F.R. Part 264.

2. Environmental Monitoring Plan

The Performing Defendants shall submit an ENVIRONMENTAL MONITORING PLAN for EPA review and approval, after reasonable opportunity for review and comment by MADEP. The ENVIRONMENTAL MONITORING PLAN shall involve monitoring to demonstrate conformance and compliance with all Cleanup Levels and Other Performance Standards listed in Section IV of this SOW. At a minimum, this plan shall detail how the Performing Defendants will demonstrate that the Cleanup Levels and Other Performance Standards listed in Section IV of this SOW have or will be attained at the Site. This plan shall include at a minimum, the following:

a. collection of groundwater gauging data and groundwater samples from sampling locations ERM-101S, ERM-105S, ERM-107S, ERM-109S, ERM-14S, ERM-16S, and ERM-28S for laboratory analysis of those compounds listed in Table L-1 of the ROD (to the extent that any of these wells have been damaged or removed as part of the FUSRAP Response Action, the Performing Defendants shall propose alternate sampling locations as part of this Plan);

b. collection of surface water samples from sampling locations SW-5, SW-6, SW-12, and SW-13 for laboratory analysis of those compounds listed in Table L-2 of the ROD;

c. sampling frequency such that sampling shall occur semi-annually until the first five-year review, and annually thereafter, unless EPA specifies that more frequent sampling is needed; and

d. appropriate statistical modeling or other data interpretation techniques.

This plan shall also incorporate the requirements of 40 C.F.R. 264.97, as necessary.

3. Revised POP

A REVISED POP shall be prepared in support of all fieldwork to be conducted according to the ENVIRONMENTAL MONITORING WORK PLAN. This REVISED POP shall be prepared in accordance with Section V.A.1.a above.

F. Final Construction Inspection

Within 60 days after Performing Defendants conclude that the construction has been fully (100% complete) performed, the Performing Defendants shall schedule and conduct a FINAL CONSTRUCTION INSPECTION. This inspection shall include participants from all parties involved in the Remedial Action, including but not limited to the Performing Defendants and their contractors, EPA and MA DEP.

G. Final Remedial Construction and Demonstration of Compliance Report

Upon completion of construction of the Remedial Action, the Performing Defendants shall submit a FINAL REMEDIAL CONSTRUCTION AND DEMONSTRATION OF COMPLIANCE REPORT (or "Close-Out Report") for 1) soil and 2) sediments to EPA for approval or modification, after reasonable opportunity for review and comment by Massachusetts Department of Environmental Protection. Such Report shall include, at a minimum, the following documentation:

1. All information necessary to demonstrate compliance with the Performance Standards, and all approved deliverables under this SOW, including, but not limited to the INSTITUTIONAL CONTROLS PLAN, as approved.

2. a summary of all procedures actually used to excavate the contaminated soil and sediments, dispose of the materials excavated, restoration of wetlands, residue handling and disposal, installation of public water supply to two residents on Union Road, and monitor the air quality during all on-site activities.

3. tabulation of all analytical data and field notes prepared during the course of the Remedial Design and Remedial Action activities including, but not limited to: horizontal and vertical perimeter locations to confirm the removal of all contaminated soil/sediment materials, air monitoring data

and types of monitoring devices used to confirm air quality standards were maintained during all on-site treatment processes, and any other analytical data collected during the Remedial Design and Remedial Action activities (full copies of all results and notes shall be available and produced for EPA and Massachusetts Department of Environmental Protection upon request).

a. QA/QC documentation of these results;

b. presentation of these results in appropriate figures;

c. a description, with appropriate photographs, maps and tables of the disposition of the Site (including areas and volumes of soil and sediment placement and disturbance);

d. final, detailed cost breakdowns for each of the treatment process components;

e. conclusions regarding conformance of treatment processes with the Performance Standards; and

f. descriptions of actions taken and a schedule of any potential future actions to be taken to implement O&M at the Site.

EPA shall review the FINAL REMEDIAL CONSTRUCTION AND DEMONSTRATION OF COMPLIANCE REPORT. If EPA, after reasonable opportunity for review and comment by the Massachusetts Department of Environmental Protection, determines that the Performance Standards have not been achieved, EPA will notify the Performing Defendants of its disapproval of the FINAL REMEDIAL CONSTRUCTION AND DEMONSTRATION OF COMPLIANCE REPORT and the activities that must be undertaken by the Performing Defendants.

If EPA concludes, based on the initial or any subsequent FINAL REMEDIAL CONSTRUCTION AND DEMONSTRATION OF COMPLIANCE REPORT, and after reasonable opportunity for review and comment by the Massachusetts Department of Environmental Protection, that all Performance Standards have been achieved, EPA will issue its approval of such report.

H. Operation and Maintenance

Within 30 days of receiving EPA's approval or modification of the Performing Defendants' final remedial construction reports for each component of the Remedial Action, the Performing Defendants shall implement all operation and maintenance activities in accordance with the terms and schedules set forth in the OPERATION AND MAINTENANCE PLAN approved by EPA. (Along with and as part of the performance of the OPERATION AND MAINTENANCE PLAN, Performing Defendants shall continue to perform all activities required by

the approved INSTITUTIONAL CONTROLS PLAN and all continuing monitoring and reporting activities required by the approved ENVIRONMENTAL MONITORING WORK PLAN.)

I. Five-Year Review Reports

Five years after the initiation of construction on the Remedial Action (see Section VI.C), and every five years thereafter, the Performing Defendants shall conduct a five-year review for the Site, and submit a FIVE-YEAR REVIEW REPORT, for EPA approval or modification, after reasonable opportunity to review and comment by MA DEP. These reports shall be prepared in accordance with EPA's Comprehensive Five-Year Review Guidance (OSWER 9355.7-03B-P), dated June 2001, as amended or superseded.

VII. SUBMISSIONS REQUIRING AGENCY APPROVAL

A. All plans, deliverables and reports identified in the SOW for submittal to EPA and the Massachusetts Department of Environmental Protection shall be delivered to EPA and Massachusetts Department of Environmental Protection in accordance with the Consent Decree and this SOW.

B. Any plan, deliverable, or report submitted to EPA and Massachusetts Department of Environmental Protection for approval shall be printed using two-sided printing and marked "Draft" on each page and shall include, in a prominent location in the document, the following disclaimer: "Disclaimer: This document is a DRAFT document prepared by the Performing Defendants under a government Consent Decree. This document has not undergone formal review by the EPA and Massachusetts Department of Environmental Protection. The opinions, findings, and conclusions, expressed are those of the author and not those of the U.S. Environmental Protection Agency or Massachusetts Department of Environmental Protection."

C. Approval of a plan, deliverable or report does not constitute approval of any model or assumption used by the Performing Defendants in such plan, deliverable or report.

ATTACHMENT A

PROJECT OPERATIONS PLAN

Before any field activities commence on the Site, Performing Defendants shall submit several site-specific plans to establish procedures to be followed by the Performing Defendants in performing field, laboratory, and analysis work and community and agency liaison activities. These site-specific plans include the:

A. Site Management Plan (SMP),
B. Sampling and Analysis Plan (SAP),
C. Health and Safety Plan (HSP), and
D. Community Relations Support Plan (CRSP).

These plans shall be combined to form the Site Project Operations Plan (POP). The four components of the POP are described in A. through D. herein.

The format and scope of each Plan shall be modified as needed to describe the sampling, analyses, and other activities that are clarified as the RD/RA progresses. EPA may modify the scopes of these activities at any time during the RD/RA at the discretion of EPA in response to the evaluation of RD/RA results, changes in RD/RA requirements, and other developments or circumstances.

A. Site Management Plan (SMP)

The Site Management Plan (SMP) shall describe how the Performing Defendants will manage the project to complete the Work required at the Site. As part of the plan the Performing Defendants shall perform the following tasks:

1. Provide a map and a list of properties, the property owners, and addresses of owners to whose property access may be required.

2. Clearly indicate the exclusion zone, contamination reduction zone, and clean area for on-site activities.

3. Establish necessary procedures and provide sample letters to land owners to arrange field activities and to ensure EPA and Massachusetts Department of Environmental Protection are informed of access-related problems and issues.

4. Provide for the security of government and private property on the Site.

5. Prevent unauthorized entry to the Site, which might result in exposure of persons to potentially hazardous conditions.

6. Secure access agreements for the Site;

7. Establish the location of a field office for on-site activities.

8. Provide contingency and notification plans for potentially dangerous activities associated with the RD/RA.

9. Monitor airborne contaminants released by Site activities which may affect the local populations.

The overall objective of the Site Management Plan is to provide EPA and the Massachusetts Department of Environmental Protection with a written understanding and commitment of how various project aspects such as access, security, contingency procedures, management responsibilities, waste disposal, budgeting, and data handling are being managed by the Performing Defendants. Specific objectives and provisions of the Site Management Plan shall include, but are not limited to the following:

1. Communicate to EPA, Massachusetts Department of Environmental Protection, and the public the organization and management of the RD/RA, including key personnel and their responsibilities.

2. Provide a list of contractors and subcontractors of the Performing Defendants in the RD/RA and description of their activities and roles.

3. Provide financial reports of the Performing Defendants' expenditures on the RD/RA activities, upon request.

4. Provide for the proper disposal of materials used and wastes generated during the RD/RA (e.g., drill cutting, extracted ground water, protective clothing, disposable equipment). These provisions shall be consistent with the off-site disposal aspects of SARA, RCRA, and applicable state laws. The Performing Defendants, or their authorized representative, or another party acceptable to EPA and Massachusetts Department of Environmental Protection shall be identified as the generator of wastes for the purpose of regulatory or policy compliance.

5. Provide plans and procedures for organizing, manipulating, and presenting the data generated and for verifying its quality before and during the RD/RA.

The last item shall include a description of the computer database management systems that are compatible with hardware available to EPA Region I personnel for handling media-specific sampling results obtained before and during the RD/RA. The description shall include data input fields, examples of data base management output from the coding of all RD/RA sample data, appropriate quality assurance/quality control to ensure accuracy, and capabilities of data manipulation. To the degree possible, the data base management parameters shall be compatible with the EPA Region I data storage and analysis system.

B. Sampling and Analysis Plan (SAP)

The SAP shall be consistent with Section VIII of the Consent Decree, Quality Assurance, Sampling, and Data Analysis of the CD. The SAP consists of both (1) a Quality Assurance Project Plan (QAPP) that describes the policy, organization, functional activities, and the quality assurance and quality control protocols necessary to achieve the data quality objectives dictated by the intended use of the data; and (2) the Field Sampling Plan (FSP) that provides guidance for all fieldwork by defining in detail the sampling and data-gathering methods to be used on a project. Components required by these two plans are described below. In addition, an Asbestos Management Plan (AMP) may be needed if asbestos is suspected due to visual observation (e.g. unearthing of siding/roofing material) at any time during the Remedial Design, Remedial Action, or Operation and Maintenance Phases, and shall comply with the substantive requirements of state and federal regulations. Amendments to the Field Sampling Plan will be made in conjunction with the development of the AMP, as appropriate.

The first SAP shall be the framework of all anticipated field activities (e.g., sampling objectives, evaluation of existing data, standard operating procedures) and contain specific information on the initial field work (e.g., sampling locations and rationale, sample numbers and rationale, analyses of samples). During the RD/RA, the SAP shall be revised as necessary to cover each round of field or laboratory activities. The purpose of the SAP is to ensure that sampling data collection activities will be comparable to and compatible with previous data collection activities performed at the Site while providing a mechanism for planning and approving field activities. The overall objectives of the two documents comprising the SAP are as follows:

1. to document specific objectives, procedures, and rationales for fieldwork and sample analytical work;

2. to provide a mechanism for planning and approving Site and laboratory activities;

3. to ensure that sampling and analysis activities are necessary and sufficient; and

4. to provide a common point of reference for all Performing Defendants to ensure the comparability and compatibility of all objectives and the sampling and analysis activities.

To achieve this last objective, the SAP shall document all field and sampling and analysis objectives as noted above, as well as all data quality objectives and specific procedures/protocols for field sampling and analysis.

The following critical elements of the SAP shall be described for each sample medium (e.g., ground water, surface water, soil, sediment, air, and biota) and for each sampling event:

1. sampling objectives {There can be many objectives for example engineering related (well yields, zone of influence, performance monitoring, demonstration of attainment, five year review, etc.};

2. data quality objectives, including data uses and the rationale for the selection of analytical levels and detection limits (see Guidance for the Data Quality Objectives Process, EPA

QA/G-4 (EPA/600/r-96/055, September 1994); Draft Data Quality Objectives Decision Errors Feasability Trials (DEFT) Software EPA/600/R-96/056, September 1994); and Final Guidance Data Usability in Risk Assessment (Part A) (publication 9285.7-09A, April 1992, PB92-963356); Guidance for Data Usability in Risk Assessment (Part B). (publication 9285.7-09B, May 1992, PB92-963362)

3. site background update, including an evaluation of the validity, sufficiency, and sensitivity of existing data;

4. sampling locations and rationale;

5. sampling procedures and rationale and references;

6. numbers of samples and justification;

7. numbers of field blanks, trip blanks, and duplicates;

8. sample media (e.g., ground water, surface water, soil, sediment, air, and buildings, facilities, and structures, including surfaces, structural materials, and residues);

9. sample equipment, containers, minimum sample quantities, sample preservation techniques, maximum holding times;

10. instrumentation and procedures for the calibration and use of portable air, soil-, or water-monitoring equipment to be used in the field;

11. chemical and physical parameters in the analysis of each sample;

12. chain-of-custody procedures must be clearly stated (see EPA NEIC Policies and Procedures Manual, EPA 330/9-78 001-R) May 1978, revised May 1986;

13. procedures to eliminate cross-contamination of samples (such as dedicated equipment);

14. sample types, including collection methods and if field and laboratory analyses will be conducted;

15. laboratory analytical procedures, equipment, and detection limits;

16. equipment decontamination procedures;

17. consistency with the other parts of the Work Plan(s) by having identical objectives, procedures, and justification, or by cross-reference;

18. analysis from each medium (other than groundwater) for all site-specific contaminants listed in the Perfomance Standards;

19. analysis of selected background and contaminated ground water samples for all site-specific contaminants listed in the Performance Standards, or as otherwise required by EPA; and

20. for any limited field investigation (field screening technique), provisions for the collection and laboratory analysis of parallel samples and for the quantitative correlation analysis in which screening results are compared with laboratory results.

The SAP must be the framework of all anticipated field activities (e.g., sampling objectives, evaluation of existing data, standard operating procedures) and contain specific information on each round of field sampling and analysis work (e.g., sampling locations and rationale, sample numbers and rationale, analyses of samples). During the RD/RA, the SAP shall be revised as necessary to cover each round of field or laboratory activities. Revisions or a statement regarding the need for revisions shall be included in each deliverable describing all new field work.

The SAP shall allow for notifying EPA, at a minimum, three weeks before field sampling or monitoring activities commence. The SAP shall also allow split, replicate, or duplicate samples to be taken by EPA (or their contractor personnel) and by other Performing Defendants approved by EPA. At the request of EPA the Performing Defendants shall provide these samples in appropriately pre-cleaned containers to the government representatives. Identical procedures shall be used to collect the Performing Defendants and the parallel split samples unless otherwise specified by EPA. Several references shall be used to develop the SAP, for example:

1. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 9355.3-01, EPA/540/G-89/004, October 1988);

2. Test Methods for Evaluating Solid Waste, Physical/Chemical Method (EPA Pub. SW-846, Third Edition, most recent update);

3. EPA Requirements for Quality Assurance Plans, EPA QA/R-5 (EPA/240/B-01/003) March 2001

4. EPA New England Quality Assurance Project Plan Program Guidance, April 2005

5. Guidance for the Data Quality Objectives Process, QA/G-4 (EPA/600/R-96/055) August 2000.;

6. Data Quality Objectives Decision Errors Feasability Trials (DEFT) Software, QA/G-4D (EPA/240/B-01/007) September 2001

7. Guidance for the Data Quality Objectives Process for Hazardous Waste, QA/G-4HW (EPA/600/R-00/007) January 2000

8. Guidance for Preparing Standard Operating Procedures(SOPs) EPA QA/G-6 (EPA/240/B-01/004) March 2001

9. Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, Revised December 1996

10. Guidance for Data Quality Assessment: Practical Methods for Data Analysis, QA/G-9 (QA00 Version, EPA/600/R-96/084) July 2000

11. EPA Requirements for Quality Management Plans, QA/R-2 (EPA 240/B-01/002) March 2001.

12. Guidance for Quality Assurance Project Plans, QA/G-5 (EPA/240/R-02/009) December 2002

EPA Headquarters (HQs) Quality Assurance Requirements and Guidance can be found at: www.epa.gov/quality/qa_docs.html and EPA Regional Quality Assurance Guidance and information can be found at: http://epa.gov/ne/lab/qa/qualsys.html

B.1 QUALITY ASSURANCE PROJECT PLAN (QAPP)

The Quality Assurance Project Plan (QAPP) shall document in writing the site-specific objectives, policies, organizations, functional activities, sampling and analysis activities and specific quality assurance/quality control activities designed to achieve the data quality objectives (DQOs) of the RD/RA. The QAPP developed for this project shall document quality control and quality assurance policies, procedures, routines, and specifications.

Project activities throughout the RD/RA shall comply with the QAPP. QAPP sampling and analysis objectives and procedures shall be consistent with EPA Requirements QAPP for Environmental Data Operations (EPA QA/R-5) and appropriate EPA handbooks, manuals, and guidelines including: , EPA New England Quality Assurance Project Plan Program Guidance, April 2005, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Pub. SW-846, Third Edition, latest update) (CLP Routine Analytical Services, RAS, latest Statement of Work should be used), Guidelines Establishing Test Procedures for the Analysis of Pollutants (40 CFR, Part 136), and Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, (EPA-600/4-84-041 April 1984).

All the QAPP elements identified in EPA QA/R-5 and the EPA New England Quality Assurance Project Plan Program Guidance, April 2005 must be addressed.

As indicated in EPA QA/R-5 and the EPA New England Quality Assurance Project Plan Program Guidance, April 2005, a list of essential elements must be considered in the QAPP for the RD/RA. If a particular element is not relevant to a project and therefore excluded from the QAPP, specific and detailed reasons for exclusion must be provided.

Information in a plan other than the QAPP may be cross-referenced clearly in the QAPP provided that all objectives, procedures, and rationales in the documents are consistent, and the reference material fulfills requirements of EPA/QA/R-5. Examples of how this cross reference might be accomplished can be found in the Guidance for the Data Quality

Objectives Process (EPA/600/R-96/055) and the Data Quality Objectives decision Errors Feasability Trials(DEFT) Software QA/G-4D (EPA/240/B-01/007) September 2001. EPA-approved references, or equivalent, or alternative methods approved by EPA shall be used, and their corresponding EPA-approved guidelines should be applied when they are available and applicable.

Laboratory QA/AC Procedures

The QA/QC procedures and SOPs for any laboratory (both fixed and mobile) used during the RD/RA shall be included in the Performing Defendants QAPP. When this work is performed by a contractor to a private party, each laboratory performing chemical analyses shall meet the following requirements:

1) be approved by the State Laboratory Evaluation Program, if available;

2) have successful performance in one of EPA's National Proficiency Sample Programs (i.e., Water Supply or Water Pollution Studies or the State's proficiency sampling program);

3) be familiar with the requirements of 48 CFR Part 1546 contract requirements for quality assurance; and

4) have a QAPP for the laboratory including all relevant analysis. This plan shall be referenced as part of the contractor's QAPP.

Data Validation Procedures

The Performing Defendants are required to certify that a representative portion of the data has been validated by a person independent of the laboratory according to the Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses Revised December 1996 (amended as necessary to account for the differences between the approved analytical methods for the project and the current Contract Laboratory Program Statements of Work(CLP SOW). A data validation reporting package as described in the guidelines cited above must be delivered at the request of the EPA project manager. Approved validation methods shall be contained in the QAPP.

The independent validator shall not be the laboratory conducting the analysis and should be a person with a working knowledge of or prior experience with EPA data validation procedures. The independent validator shall certify that the data has been validated, discrepancies have been resolved if possible, and the appropriate qualifiers have been provided.

Data Package requirements:

The Performing Defendants must require and keep the complete data package and make it available to EPA and the Massachusetts Department of Environmental Protection on request in order for EPA and the Massachusetts Department of Environmental Protection to conduct an independent validation of the data. The complete data package shall consist of all

results, the raw data, and all relevant QA/QC information. The forms contained in the data validation functional guidelines must be utilized to report the data when applicable. Raw data includes the associated chromatograms and the instrument printouts with area and height peak results. The peaks in all standards and samples must be labeled. The concentration of all standards analyzed with the amount injected must be included. All laboratory tracking information must also be included in the data package. An example data package deliverable is listed below:

1) a summary of positive results and detection limits of non-detects with all raw data;
2) surrogate recoveries and QC limits from methods 3500 and 8000 in SW-846 and all validation and sample raw data;
3) matrix spike/matrix spike duplicate recoveries, relative percent differences, spike concentrations, and QC limits from methods 3500 and 8000 in SW-846 and all validation and sample raw data;
4) associated blanks (trip, equipment, and method with accompanying raw data for tests);
5) initial and continuing calibration results (concentrations, calibration factors or relative response factors and mean relative response factors, % differences and % relative standard deviations) with accompanying raw data;
6) retention time windows for each column;
7) a record of the daily analytical scheme (run logbook, instrument logbook) which includes samples and standards order of analysis;
8) the chain of custody for the sample shipment groups, *DAS packing slip, DAS analytical specifications;* refer to: EPA NEIC Policies and Procedures Manual, (EPA 330/9-78 001-R) May 1978, revised May 1986 (for chain-of-custody procedures.);
9) a narrative summary of method and any problems encounter during extraction or analysis;
10) sample weights, volumes, and % solids used in each sample calculation;
11) example calculation for positive values and detection limits; and
12) SW-846 method 3500 and 8000 validation data for all tests.

The forms contained in Chapter 1 of SW-846 (Second Edition 1982 as amended by Update I, April 1984, and Update II, April 1985) or the current CLP SOW forms must be utilized to report the data when applicable. Raw data includes the associated chromatograms and the instrument printouts with area and height peak results. The peaks in all standards and samples must be labeled. The concentration of all standards analyzed with the amount injected must be included. *All internal and external laboratory sample tracking information must be included in the data package.*

B.2 FIELD SAMPLING PLAN (FSP)

The objective of the Field Sampling Plan is to provide EPA and all parties involved with the collection and use of field data with a common written understanding of all field work. The FSP should be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and field information required. Guidance for the selection of field methods, sampling procedures, and custody can be acquired from the Compendium of

Superfund Field Operations Methods (OSWER Directive 9355.0-14, EPA/540/P-87/001), December 1987, which is a compilation of demonstrated field techniques that have been used during remedial response activities at hazardous waste sites. The FSP shall be site-specific and shall include the following elements:

1. Site Background. If the analysis of the existing Site details is not included in the Work Plan or in the QAPP, it must be included in the FSP. This analysis shall include a description of the Site and surrounding areas and a discussion of known and suspected contaminant sources, probable transport pathways, and other information about the Site. The analysis shall also include descriptions of specific data gaps and ways in which sampling is designed to fill those gaps. Including this discussion in the FSP will help orient the sampling team in the field.

2. Sampling Objectives. Specific objectives of sampling effort that describe the intended uses of data must be clearly and succinctly stated.

3. Sampling Location and Frequency. This section of the FSP identifies each matrix to be collected and the constituents to be analyzed. Tables shall be used to clearly identify the number of samples, the type of sample (water, soil, etc.), and the number of quality control samples (duplicates, trip blanks, equipment blanks, etc.). Figures shall be included to show the locations of existing or proposed sample points.

4. Sample Designation. A sample numbering system shall be established for the project. The sample designation should include the sample or well number, the sample round, the sample matrix (e.g., surface soil, ground water, soil boring), and the name of the Site.

5. Sampling Equipment and Procedures. Sampling procedures must be clearly written. Step-by-step instructions for each type of sampling that are necessary to enable the field team to gather data that will meet the Data Quality Objectives (DQOs). A list should include the equipment to be used and the material composition (e.g., Teflon, stainless steel) of equipment along with decontamination procedures.

6. Sampling Handling and Analysis. A table shall be included that identifies sample preservation methods, types of sampling jars, shipping requirements, and holding times. Examples of paperwork such as traffic reports, chain-of-custody forms, packing slips, and sample tags filled out for each sample as well as instructions for filling out the paperwork must be included. Field documentation methods including field notebooks and photographs shall be described.

C. Health and Safety Plan (HSP)

The objective of the site-specific Health and Safety Plan is to establish the procedures, personnel responsibilities and training necessary to protect the health and safety of all on-site personnel during the RD/RA. The plan shall provide procedures and plans for routine but hazardous field activities and for unexpected Site emergencies.

The site-specific health and safety requirements and procedures in the HSP shall be updated based on an ongoing assessment of Site conditions, including the most current information on each medium. For each field task during the RD/RA, the HSP shall identify:

1. possible problems and hazards and their solutions;
2. environmental surveillance measures;
3. specifications for protective clothing;
4. the appropriate level of respiratory protection;
5. the rationale for selecting that level; and
6. criteria, procedures, and mechanisms for upgrading the level of protection and for suspending activity, if necessary.

The HSP shall also include the delineation of exclusion zones on a map and in the field. The HSP shall describe the on-site person responsible for implementing the HSP for the Performing Defendants representatives at the Site, protective equipment personnel decontamination procedures, and medical surveillance. The following documents and resources shall be consulted:

1. OSHA e-HASP Software – Version 1.0, September 2003 (www.osha.gov/dep/etools/ehasp/index.html)
2. Hazardous Waste Operations and Emergency Response (Department of Labor, Occupational Safety and Health Administration, (OSHA) 29 CFR Part 1910.120); and
3. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: Appendix B (NIOSH/OSHA/EPA 1986).

OSHA regulations at 40 CFR 1910, which describe the routine emergency provisions of a site-specific health and safety plan, and the OSHA e-HASP Software, shall be the primary references used by the Performing Defendants in developing and implementing the Health and Safety Plan.

The measures in the HSP shall be developed and implemented to ensure compliance with all applicable state and Federal occupational health and safety regulations. The HSP shall be updated at the request of EPA during the course of the RD/RA and as necessary.

D. Community Relations Support Plan (CRSP)

EPA shall develop a revised Community Relations Plan (CRP) to describe public information and public involvement activities anticipated during the RD/RA and delisting. The Performing Defendants shall develop a Community Relations Support Plan, whose

objective is to ensure and specify adequate support from the Performing Defendants for the community relations efforts of EPA. This support shall be at the request of EPA and may include:

1. participation in public informational or technical meetings, including the provision of presentations, logistical support, visual aids and equipment;

2. publication and copying of fact sheets or updates; and

3. assistance in preparing a responsiveness summary after the public RD/RA comment period;

4. assistance in placing EPA public notices in print.